

**La mesta**  
AET group



INNOVATION IN FINE CHEMICALS

**AETGROUP**  
fine chemicals  
We design your future

# A full range of services

We offer the full range of services that you can expect from your chemical partner.

We develop, industrialize and manufacture in our site some sophisticated products (starting materials, advanced intermediates, active ingredients).

In addition to the standard custom synthesis services, we offer innovative technologies developed within AET Group.



## OUR JOB: industrial production of multistep organic chemistry

- Custom manufacturing
- Chemical development
- Process industrialization
- Catalogue products

## OUR TOOLS: standard & innovative equipments developed within AET Group

- Industrial site in Nice – French Riviera
- Highly qualified R&D team
- Pilot plant
- Innovative technologies for high pressure, continuous chemistry, heat control, hazardous chemistry.

## OUR QUALITY STANDARDS:

- ISO 9001 v.2008 certification
- cGMP certified production plant (ICH Q7A standards)
- DMF, CTD, COS files in Europe and Japan
- Kosher certification

## OUR VALUES:

- The absolute respect of ethical rules
- A strong involvement in sustainable chemistry
- The strictest adherence to contracts and confidentiality agreements

## TECHNOLOGIES

Our site has R&D laboratories, pilot plant and industrial equipments. In addition to our expertise, La Mesta can benefit from AET Group's input in terms of chemical engineering with our sister company Chemsis to design and build innovative technological solutions.

		ANTI-CORROSION	STAINLESS STEEL
PILOT BATCH REACTORS	From 50 to 200 liters	3	1
	PRESSURE / DISTILLATION / SOLID SEPARATION		
BATCH REACTORS	Number of 2-4 m <sup>3</sup> vessels	8	3
	Number of 5-8 m <sup>3</sup> vessels	4	1
	Number of vessels > 8 m <sup>3</sup>	1	3
	Mini continuous flow reactor from 5 to 150 l/hour		
PRESSURE VESSELS	Batch up to 100 bar		3 x 2000 l 1 x 6000 l
	Mini continuous flow reactor up to 300 bar		
<b>TOTAL REACTION CAPACITIES: 130 m<sup>3</sup></b>			
DISTILLATION	60 plates - 1 mbar - 250°C 3 batch distillation columns 1 thin film evaporator		
SOLID SEPARATION & DRYING	2 agitated dryers 3 filter dryers Centrifuges Static ovens		



# A wide range of technologies



AET Group designs innovative technologies for industrial production. Our Organic Chemists working together with Process Engineers develop and implement processes in optimized conditions.

## RAPTOR® technology: mini continuous flow reactor

RAPTOR®, developed by AET Group, is an **industrial scale oriented** continuous reactor for intensified chemical processes. RAPTOR® is equipped with a high speed stirring system combined with efficient thermal transfer. This technology allows handling very **hazardous** or **highly exothermic** reactions in **safe conditions**. By increasing synthesis productivity, lowering waste generation and energy consumption, Raptor® technology allows improving the production costs.



Pilot scale



Industrial scale

### TECHNICAL FEATURES

Pressure:	300 bar (4,350 psi)
Temperature:	-100°C (-150°F) to +300°C (570°F)
Heat exchange Area /volume:	150 m <sup>2</sup> /m <sup>3</sup> (3 to 5 m <sup>2</sup> /m <sup>3</sup> for a batch reactor )
Stirring system:	0 to 1,500 rpm
Residence time:	10 seconds to few minutes
Flow rate:	from 5 to 150 litres per hour (1.3 to 40 gallons per hour)

### REACTIONS OPERATED IN CONTINUOUS

- Acetylation
- Ammonolysis
- Carbene chemistry
- Carbonylation
- Hydrogenation: Liquid or solid catalyst
- Hydrolysis
- Isomerization
- Methylation
- Oxidation
- Phosgenation
- Reductive amination
- Sodium amide alkylation

## PHOSGENATION: integrated phosgene generator system

AET Group developed an integrated system for **in-situ phosgene generation**. Once generated, phosgene reacts immediately **in continuous** with RAPTOR®. This isolated system allows performing phosgenation **without any phosgene storage or accumulation**, and the continuous system allows improving productivity and selectivity for reduced costs. The first system has been running at La Mesta Chimie Fine with a phosgene generation capacity of around 4 kg/hour since 2 years. A Phosgene generation capacity of 12-15 kg/hour is being implemented. **Typical phosgenated product campaign size is between few kg to tens of tons.**



Continuous phosgenation



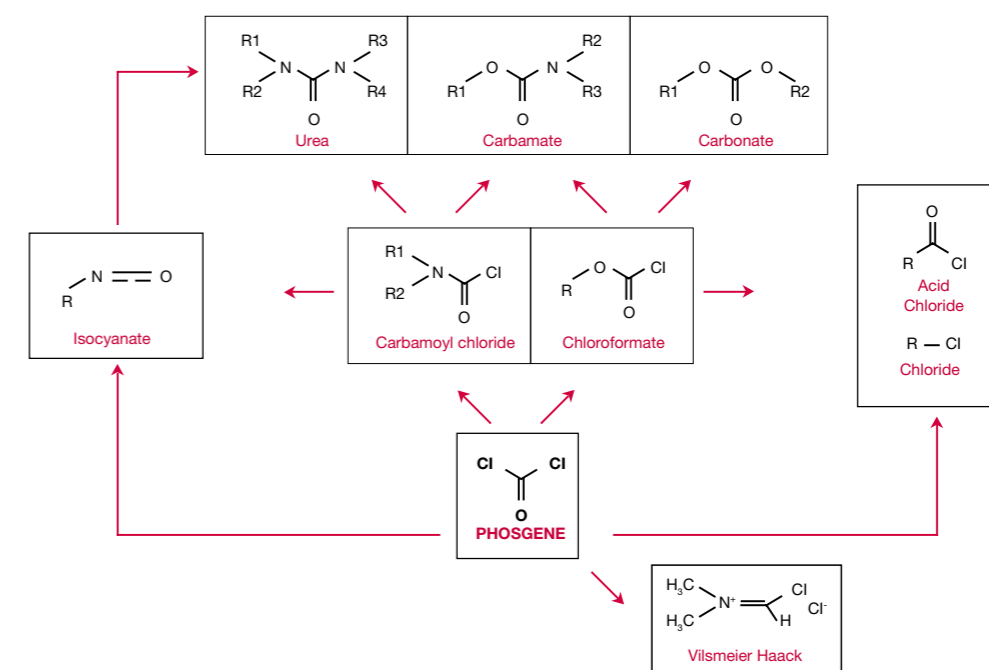
Integrated system

Process Control

Continuous phosgene generation

Continuous reaction

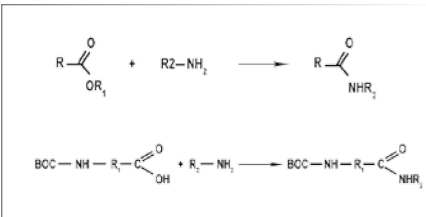
### PRODUCTS MANUFACTURED WITH THIS PHOSGENATOR



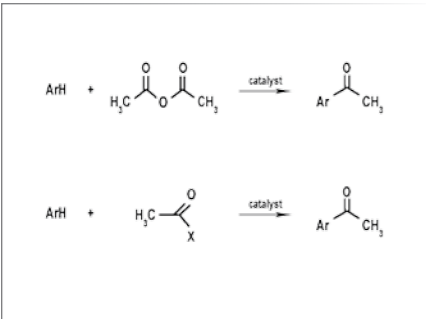
# A wide range of chemistry

Based on 40 years of experience, we offer a **wide range of chemistry**. Our specific chemical know-how is based on our ability to handle a variety of sensitive reagents. Moreover, the combination of this experience together with the use of innovative equipments from **AET Group** enables La Mesta to offer **very original chemical solutions**.

## Amidations



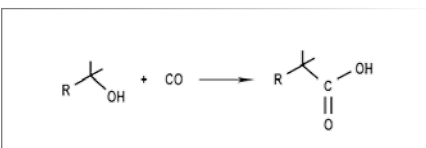
## Acetylations



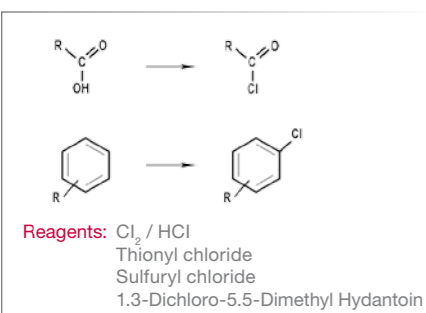
## Carbanion chemistry



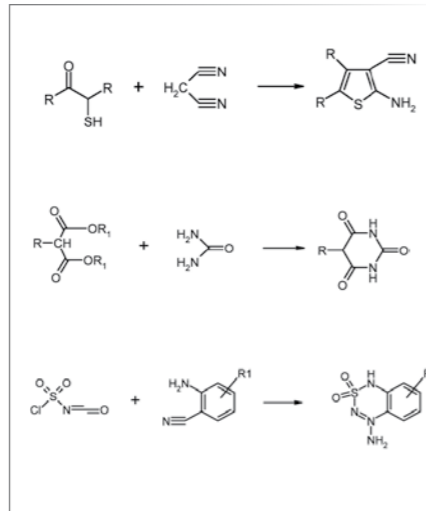
## Carbonylations



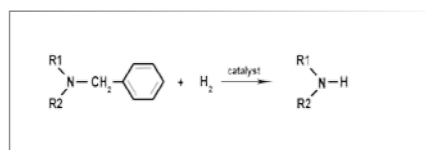
## Chlorinated chemistry



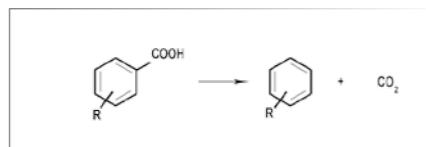
## Cyclisations



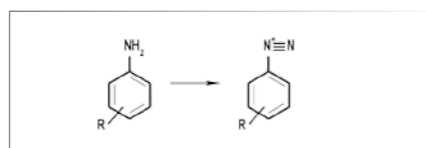
## Debenzylations



## Decarboxylations



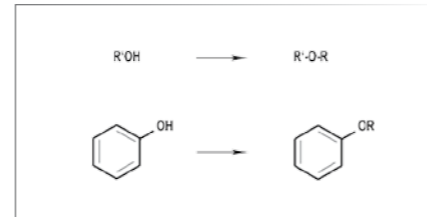
## Diazotations



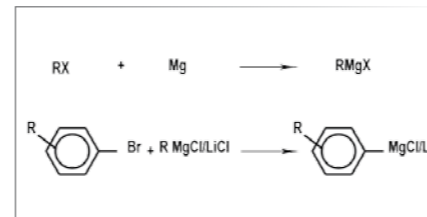
## Epoxidations



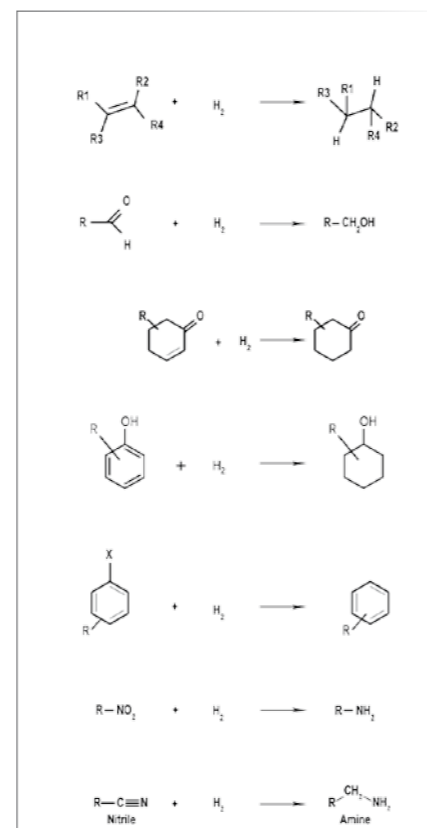
## Etherifications



## Grignard reactions

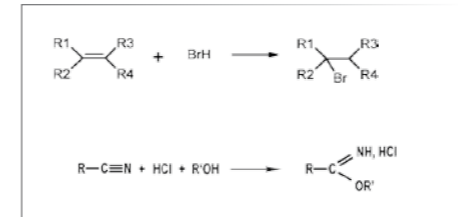


## Hydrogenations

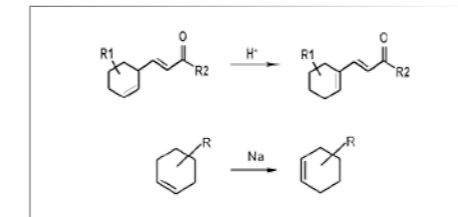


Catalysts: Pd, Raney Nickel, Pt, Ru...  
Reactors: Stainless Steel & Glass Lined  
Batch & Continuous  
Pressure: Up to 300 bar

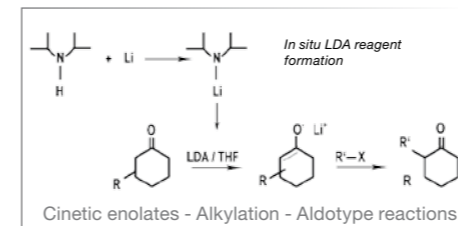
## Hydrohalogenations



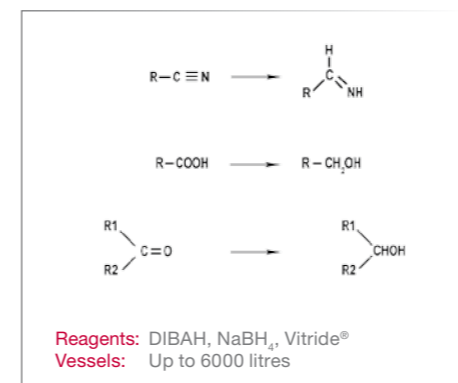
## Isomerizations



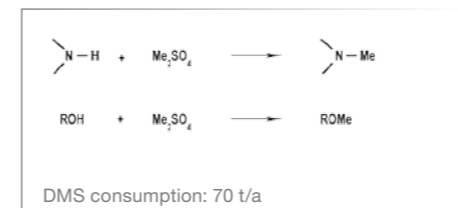
## Lithium chemistry



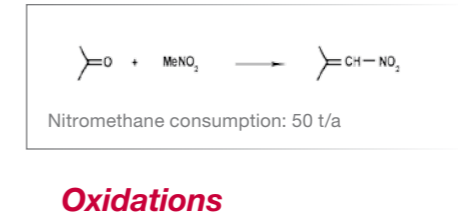
## Metal hydride reductions



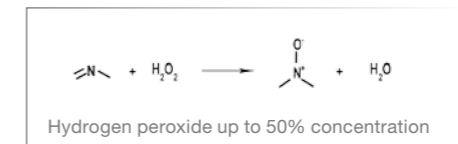
## Methylations



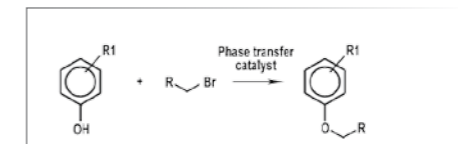
## Nitromethane chemistry



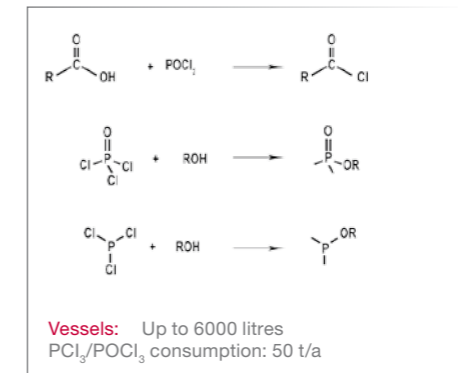
## Oxidations



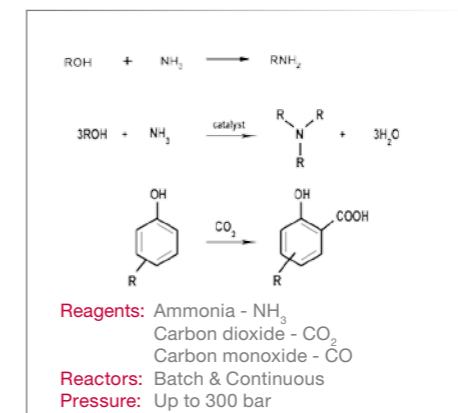
## Phase Transfer reactions



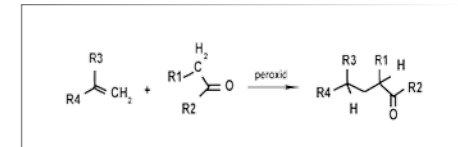
## Phosphorated chemistry



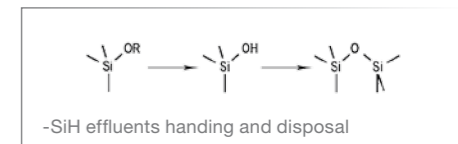
## Pressure reactions



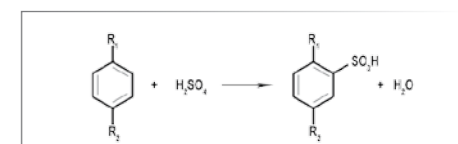
## Radical addition



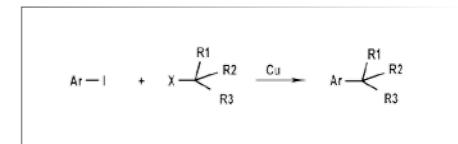
## Silane reactions



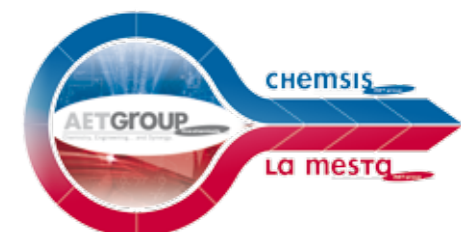
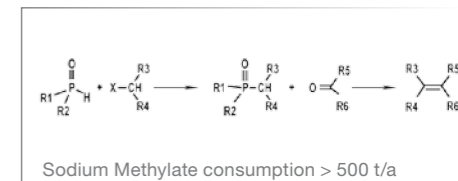
## Sulfonations



## Ullmann reactions



## Witting Horner reactions





**La Mesta** is a technology driven company with 40 years of activity in Europe, Japan and in the US, involved in **Custom Synthesis** of sophisticated chemical entities used in the field of Pharmaceuticals, Cosmetics, Flavors & Fragrances, Agrochemicals and Photo industry. Based on our expertise and equipment, we offer a flexible and comprehensive service, from **process development** to **industrial manufacture**.

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